

## WHAT IS CLAIMED IS:

1. A plurality of container assemblies comprising at least a first container assembly and a second container assembly, each of said container assemblies in said plurality having an outer container and an inner container nested within said outer container, said outer containers of each of said container assemblies having substantially identical external dimensions, said inner container of said first container assembly being configured to define a first volume for said first container assembly, said inner container of said second container assembly being configured to define a second volume for said second container assembly, said second volume being less than said first volume.

2. The plurality of container assemblies of Claim 1, wherein each said container assembly further comprises a closure, the closures of said first and second container assemblies being substantially identical.

3. The plurality of container assemblies of Claim 1, wherein the inner container of the first container assembly has a sidewall with a first thickness, the inner container of the second container assembly having a sidewall of a second thickness, the second thickness being greater than the first thickness.

4. The plurality of container assemblies of Claim 1, wherein the outer container of each said container assembly has a closed bottom and an open top, the inner container of each said container assembly having a bottom wall at least partly nested with the closed bottom of the outer container of the respective container assembly, the bottom wall of the inner container of the first container assembly being spaced a first distance from the open top of the outer container of the first container assembly, the bottom wall of the inner container of the second container assembly being spaced a second distance from the open top of the outer container thereof, the second distance being less than the first distance.

5. The plurality of container assemblies of Claim 4, wherein the bottom wall of the inner container of the second container assembly includes a projection extending into nested engagement with the closed bottom of the outer container of the second container assembly.

6. The plurality of container assemblies of Claim 5, wherein the projection has a thickness substantially equal to thicknesses existing at other locations on the inner container of the second container assembly.

7. The plurality of container assemblies of Claim 1, wherein the inner container of the first container assembly has a closed bottom and an open top and defining a first length therebetween, the inner container of the second container assembly having a closed bottom and an open top and defining a second length therebetween, the second length being less than the first length.

8. The plurality of container assemblies of Claim 7, wherein the first container assembly has a first closure and the second container assembly has a second closure, the first and second closures extending into sealing engagement with the open tops of the inner containers in the respective first and second container assemblies, the second closure being longer than the first closure.

9. The plurality of container assemblies of Claim 1, wherein the inner container of each of said container assemblies has a plurality of surface of discontinuities for permitting an escape of air as the inner container is nested into the outer container of the respective container assembly.

10. The plurality of container assemblies of Claim 1, wherein the outer container of each said container assembly is a tube with a substantially cylindrical sidewall.

11. The plurality of container assemblies of Claim 10, wherein the inner container of each said container assembly is a tube with a substantially cylindrical sidewall, inner surface regions of each said inner container defining an outwardly tapering open top for sealing engagement with a closure.

12. The plurality of container assemblies of Claim 1, wherein the outer container of each said container assembly is formed from a first material and wherein the inner container of each said container assembly is formed from a second material different from said first material.

13. First and second container assemblies for containing first and second volumes of liquid, said first and second container assemblies having substantially identical outer containers, inner containers nested in the respective outer containers and configured respectively for defining a first inner volume for said first container assembly and a second inner volume for said second container assembly, said second inner volume being less than said first inner volume by an amount substantially corresponding to a difference between said first and second volumes of liquid.

14. The container assemblies of Claim 13, further comprising first and second closures for closing the respective first and second container assemblies, said first and second container assemblies defining substantially identical head spaces adjacent said closures when the respective first and second volumes of liquid are in the first and second container assemblies.

15. A plurality of containers comprising at least one first container and at least one second container, each of said containers having a container wall with opposite outer and inner surfaces and defining a wall thickness between said outer and inner surfaces, each of said containers having substantially identical external dimensions defined by said outer surfaces of said container walls, said first container having a first wall thickness for defining a first internal volume for said first container, said second container having a second wall thickness greater than said first wall thickness for defining a second internal volume for said second container, said second internal volume being less than the first internal volume, whereby said first and second containers enable collection of first and second volumes of material with substantially identical head spaces in the respective container.

16. The plurality of containers of Claim 15, wherein each said container is formed from a first plastic material adjacent said outer surface and a second plastic material adjacent said inner surface.

17. The plurality of containers of Claim 16, wherein said first plastic for each of said containers is of substantially identical thickness.

18. The plurality of containers of Claim 16, wherein said first and second plastics are molded to define an integral matrix of plastic material between said inner and outer surfaces of each of said containers.

19. A plurality of container assemblies, each of said container assemblies defining a container with a closed bottom, an open top and a sidewall extending between said closed bottom and said open top, each said container further having a closure sealingly engaged in said open top of said container, at least a first of said closures being dimensioned to extend a first distance into the open top of the respective container, and at least a second closure being dimensioned to extend a second distance into the open top of the respective container, said second distance being greater than said first distance such that the container with said second closure defines an inner volume smaller than the container with said first closure.

20. The plurality of container assemblies of Claim 19, wherein all of said containers are substantially identical.

21. The plurality of containers of Claim 19, wherein each of said containers is unitarily molded from a plastic material.

22. The plurality of containers of Claim 19, wherein each of said containers is molded to define an outer tube formed from a first plastic material and an inner tube formed from a second plastic material, said first and second plastic materials defining an integral matrix of plastic throughout each of said containers.

23. The plurality of container assemblies of Claim 19, wherein each of said containers comprises an outer tube and an inner tube nested within said outer tube.

24. A method for collecting a sample of liquid comprising:

providing a plurality of substantially identical outer containers;

providing a plurality of inner containers, each of said inner containers being dimensioned for nested engagement within any of said outer containers, at least a first of said inner containers defining a smaller interior volume than at least a second of said inner containers;

determining a required volume for a liquid sample;

selecting an appropriate one of said inner containers with a volume greater than the required volume by an amount sufficient for achieving a specified head space;

inserting the selected inner container into any of said outer containers to define a container assembly; and

collecting the selected volume of said liquid in the container assembly for achieving the specified head space in said container assembly.

25. The method of Claim 24, further comprising closing the container assembly.

26. A method for collecting a sample of liquid comprising:

providing at least first and second containers having substantially identical outer dimensions and having at least first and second different internal volumes;

determining a required volume for a liquid sample;

selecting an appropriate one of said containers with a volume greater than the required volume by an amount for achieving a specified head space;

collecting the selected volume of said liquid in said container for achieving the specified head space in the container.

27. The method of Claim 26, wherein the step of providing at least first and second containers comprises providing a plurality of containers each of which has a container with a closed bottom, an open top and a sidewall extending between said closed bottom and said open top, each said container further having a closure sealingly engaged in said open top.

28. The method of Claim 27, wherein each of said containers is an evacuated container, and wherein the step of collecting the selected volume of liquid comprises placing the evacuated container in communication with a source of the liquid.

29. The method of Claim 27, wherein the step of providing a plurality of containers comprises providing a plurality of containers each of which is molded unitarily from a plastic material.

30. The method of Claim 27, wherein the step of providing a plurality of containers comprises providing a plurality of containers each of which has an outer container formed from a first plastic and an inner container formed from a second plastic.

31. The method of Claim 30, wherein the first and second plastics are molded to define an integral matrix of plastic extending between inner and outer surfaces of the respective container.

32. The method of Claim 27, wherein the different volumes for said container assemblies are achieved by providing a plurality of differently dimensioned closures.

33. The method of Claim 26, further comprising providing at least a third container having a third internal volume different from the first and second internal volumes.